CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 89-137

SITE CLEANUP REQUIREMENTS FOR:

FORD AEROSPACE CORPORATION
WESTERN DEVELOPMENT LABORATORIES
3939 FABIAN
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. Site Description Ford Aerospace has owned and occupied a large complex, in Palo Alto, Santa Clara County since 1959. This site is bordered to the north and south by the Bayshore Freeway and Charleston Road and to the west and east by Fabian Way and San Antonio Road. Ford Aerospace is hereinafter called a discharger for purposes of this Order.

2. The site currently consists of nine buildings and a former carpool maintenance facility (see attached site map). Operations at the facility currently consist of fabrication of communications satelites and related communications equipment. Building one including the adjoining parking lot on the southern side of the building was purchased by Sun Microsystems of Mountain View in 1988.

3. Hydrogeology The site is located on a series of overlapping alluvial fans deposited by east-flowing streams descending from the Santa Cruz Mountains. The regional groundwater gradient is northeast toward San Francisco Bay. A shallow water bearing zone has been encountered at approximately ten feet below ground surface. Most of the existing monitoring wells have been screened in this zone. The location and character of the deeper water bearing zones beneath the site are poorly understood.

4. Site History An environmental audit was performed by the discharger for this site during March of 1987. This audit included the installation of four monitoring wells. The results of this investigation detected VOC's (volatile organic compounds) in the shallow groundwater beneath the site. Chemicals detected in the groundwater beneath the site include: trichloroethylene, perchloroethylene, Freon 113, Acetone, trans 1,2-dichloroethylene. Total VOC concentrations have been as high as 2000 parts per billion.

5. Four monitoring wells have been installed by the discharger on the upgradient boundary of the facility. Several of these wells have indicated chemical migration from upgradient sources. Based on these results Board staff have initiated investigations of possible upgradient sources.

6. Staff requested the discharger to perform a potential source investigation at several present and past chemical handling areas on the site the results of which were submitted during February of 1989 in a technical report. This report identified four possible source areas at the facility.

   VOCs were detected in soils at the rear of Buildings 7 & 8 (see site map). Based on interviews with former employees these chemicals were apparently discharged during prior chemical handling practices.

   An extensive investigation (28 borings) at the rear of Building 3 detected VOCs (predominantly PCE) in a localized area at the northern most end of the fenceline.

   Building 12, which is located approximately one half mile from buildings 7 and 8 and had a former drum storage area at the rear of the facility. Six borings were constructed in this area two of which detected low levels of toluene (200 ppb) in the soil.

   Building 6 formerly was the motor vehicle pool service area which was demolished in 1988. This facility had two underground fuel tanks and a waste oil tank. A noticeable hydrocarbon odor was detected during a previous investigation. Analytical results detected significant concentrations (100-200 ppm) of fuel hydrocarbons. The discharger has subsequently excavated approximately 80 cubic yards for disposal off-site. Soil samples of the excavation walls and floor did not detect fuel hydrocarbons and therefore it is not believed that the hydrocarbon reached the saturated zone.

7. The history of chemical usage, storage and handling at the site is not well understood. The potential exists for other on-site sources of chemicals which have not yet been identified.

8. Adjacent Investigations The site is bordered to the south by Advalloy, Inc. at 844 East Charleston Road, Advalloy performs precision metal stamping for the semiconductor industry. Soil and groundwater investigations conducted by Advalloy and received June 1988 indicated that VOCs had been released to the subsurface at the wastewater acid neutralization system sump. The VOCs have reached the groundwater and have migrated beyond the Advalloy property boundary commingleing with the chemical plume beneath the

Ford-Aerospace site. Regional Board staff is currently investigating other possible sources to the commingled pollutant plume. Site Cleanup Requirements will be adopted for Advalloy and other sources as they are discovered.

9. Groundwater Investigations The discharger has constructed 17 on-site monitoring wells one of which have been completed to the deeper groundwater flow zone. The results of this investigation have shown that the VOC plume is laterally extensive beneath the site and that low levels of VOC's have migrated to the next deeper flow zone. During the course of this investigation it was discovered that a foundation dewatering system for Building 5 extracts groundwater at an average flowrate of 70 gpm and significantly affects the shallow groundwater gradient. Volatile organic compounds have been detected in this systems effluent which is currently discharged to the storm sewer.

10. Resolution 88-160, adopted by the Regional Board, strongly encourages, the maximum feasible reuse of extracted groundwater from groundwater pollution remediations either by the discharger or other public or private water users.

11. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.

12. The existing and potential beneficial uses of the groundwater underlying and adjacent to the discharger's facilities include:

    a. Industrial process water supply
    b. Industrial service supply
    c. Agricultural supply
    d. Municipal and domestic supply

13. The discharger caused or permitted waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

14. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

15. The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharges and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

16. The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the waters of the State is prohibited.

2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The discharger shall conduct monitoring activities as needed to define the local hydrogeological conditions, and the lateral and vertical extent of the soil and groundwater pollution. Should monitoring results show evidence of pollution migration, additional plume characterization of pollutant extent shall be required.

C. PROVISIONS:

1. The discharger shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Board's Executive Officer.

2. The discharger shall comply with this Order immediately upon adoption with the exception that the discharger shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2., as modified in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

a. 1) COMPLETION DATE: October 16, 1989
TASK: **QUALITY ASSURANCE PROJECT PLAN:** Submit a technical report acceptable to the Executive Officer containing a Quality Assurance Project Plan. The Quality Assurance Project Plan format and contents shall be consistent with CERCLA/SARA regulations and guidance.

b. 1) COMPLETION DATE: September 15, 1989
TASK:**GROUNDWATER REUSE PLANS** Submit a technical report acceptable to the Executive officer which contains a description of the groundwater reuse plans for the Building 5 dewatering system discharge. This proposal shall consider Regional Board Resolution 88-160 in recommending groundwater disposal alternatives.

2) COMPLETION DATE: January 15, 1990
TASK: **COMPLETION OF GROUNDWATER TREATMENT AND/OR REUSE SYSTEM:** Submit a technical report acceptable to the Executive Officer documenting the completion of the Building 5 groundwater treatment system and/or reuse system.

c. 1) COMPLETION DATE: October 20, 1989
TASK:**GROUNDWATER POLLUTION CHARACTERIZATION PROPOSAL:** Submit a technical report acceptable to the Executive Officer containing a proposal to define the lateral and vertical extent of the groundwater pollution.

2) COMPLETION DATE: February 20, 1990
TASK: **COMPLETION OF GROUNDWATER POLLUTION CHARACTERIZATION:** Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 2.c.1).

d. 1) COMPLETION DATE: December 15, 1989
TASK: **INTERIM REMEDIAL ACTIONS:** Submit a technical report acceptable to the Executive Officer which contains an evaluation of interim remedial alternatives, a recommended plan for interim remediation, and an implementation time schedule. This report shall evaluate the removal and/or cleanup of polluted soils; evaluate alternative hydraulic control systems to contain and to

initiate cleanup of polluted groundwater; and include a completed NPDES application to discharge to surface waters, if such discharge is an element of the plan.

2) COMPLETION DATE: April 15, 1990
TASK: **COMPLETION OF INTERIM REMEDIAL ACTIONS:** Submit a technical report acceptable to the Executive Officer documenting completion of construction and startup of the operation of the interim remedies identified in the technical report submitted for Task 2.d.1.

e. COMPLETION DATE: April 15, 1991
TASK:**FINAL CLEANUP OBJECTIVES AND ACTIONS:** Submit a technical report acceptable to the Executive Officer containing: 1) an evaluation of interim remedial actions, 2) results of a feasibility study evaluating alternative final remedial measures, 3) recommended measures necessary to achieve final cleanup measures, and 4) specific tasks and a time schedule necessary to implement the recommended final remedial measures.

The submittal of technical reports evaluating immediate, interim and final remedial measures will include a projection of the cost, effectiveness, benefits and impact on public health, welfare and environment of each alternative measure. The remedial investigation and feasibility study shall consider the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1(c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California".

3. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

4. The discharger shall submit to the Board monthly technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order. These reports shall consist of a letter report that, (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the

schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order. These reports shall be submitted by the 15th of each month, summarizing the previous month's activities.

5. The discharger shall submit to the Board technical reports acceptable to the Executive Officer containing Site Safety Plans, and Site Sampling Plans.

6. Site Sampling Plans and Site Safety Plans shall be submitted for each task listed in Provision 2. and for conducting the Self-Monitoring Program. The Site Safety Plans, and Site Sampling Plans format and contents shall be consistent with CERCLA regulations and guidance documents.

7. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer. This requirement shall not apply to monthly reports and quarterly progress reports provided the hydrogeological information contained in these reports has been submitted or is scheduled for submittal by a registered geologist, engineering geologist, or professional engineer.

8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.

9. The discharger shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

    a. Santa Clara Valley Water District
    b. Santa Clara County Health Department
    c. City of Palo Alto
    d. State Department of Health Services/TSCD

The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to other agencies or to a local repository for public use.

11. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

    a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any monitoring equipment or methodology implemented in response to this Order.

    d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

12. The discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order within 60 days of said changes.

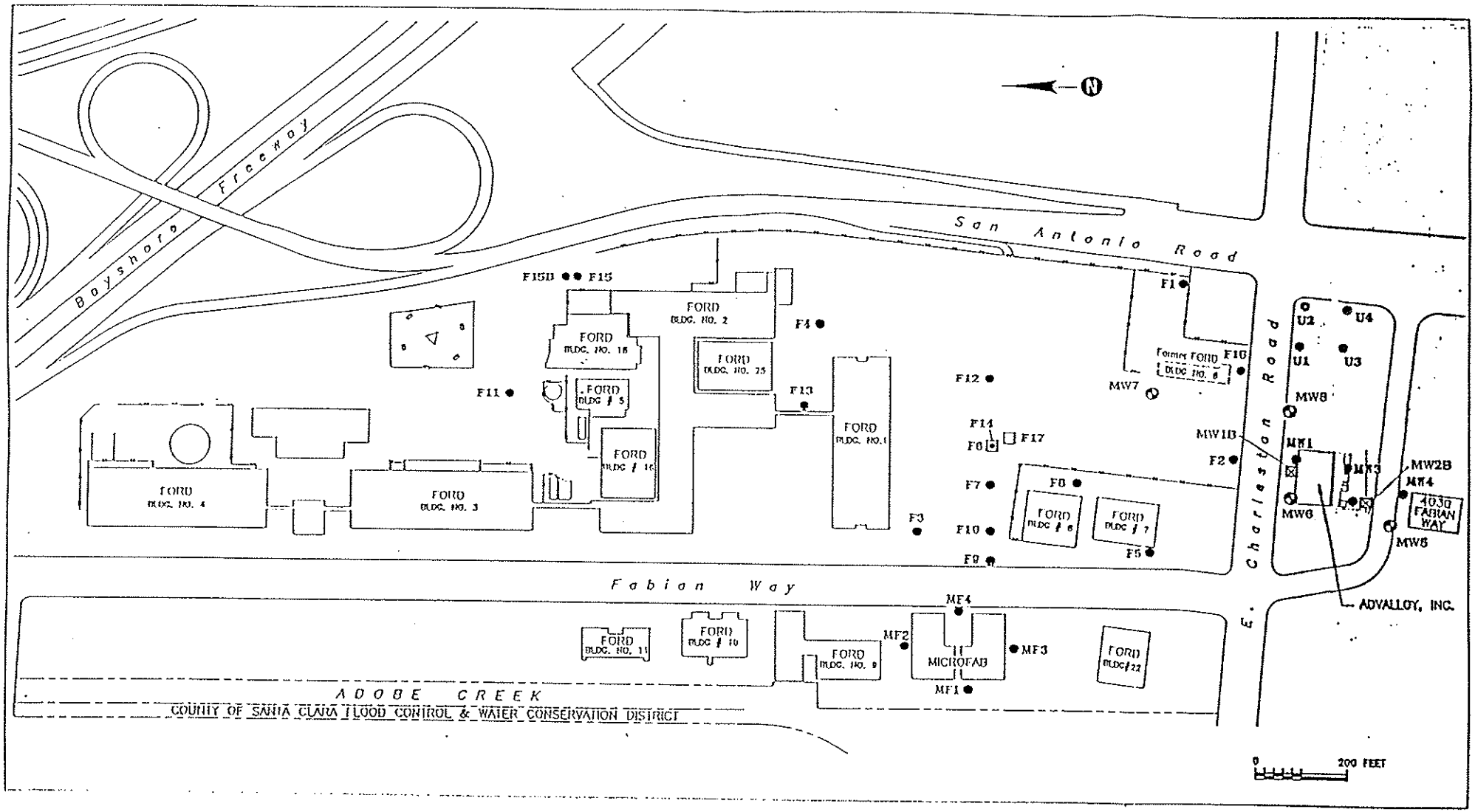
13. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

14. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 16, 1989.

Steven R. Ritchie
Executive Officer

attachments: Self-Monitoring Program
Site Map


Bayshore Freeway
San Antonio Road
Charleston Road
Fabian Way
ADOBE CREEK
COUNTY OF SANTA CLARA FLOOD CONTROL & WATER CONSERVATION DISTRICT
FORD BLDG. NO. 4
FORD BLDG. NO. 3
FORD BLDG. NO. 18
FORD BLDG. # 5
FORD BLDG. # 16
FORD BLDG. NO. 2
FORD BLDG. NO. 25
FORD BLDG. NO. 1
FORD BLDG. # 6
FORD BLDG. # 7
Former FORD BLDG. NO. 8
FORD BLDG. NO. 11
FORD BLDG. # 10
FORD BLDG. NO. 9
MICROFAB
FORD BLDG. #22
F15B
F15
F4
F11
F13
F12
F14
F16
F17
F1
F10
F2
F7
F8
F3
F9
F5
MW7
MW8
MW1B
MW1
MW3
MW2B
MW4
MW6
MW5
4030 FABIAN WAY
ADVALLOY, INC.
U2
U4
U1
U3
MF4
MF2
MF3
MF1
0
200 FEET

SITE MAP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

FORD AEROSPACE CORPORATION
WESTERN DEVELOPMENT LABORATORIES
PALO ALTO, CA
GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a waste discharger's monitoring program, also referred to as a self-monitoring program, are: (1) To document compliance with site cleanup requirements and prohibitions established by this Regional Board, (2) To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) To develop or assist in the development of effluent or other limitations, discharger prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) To prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Self-Monitoring Reports

a. Reporting Period:

Commencing with the report due November 15, 1989, written reports shall be filed regularly each quarter within forty-five days from the end of the quarter monitored.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions

taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by either a principal executive officer or his duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

(1). Results from each required analysis and observation shall be submitted in the quarterly self-monitoring report (SMR). GC analysis shall be performed and all peaks identified and reported on each well according to Table 1 and on each new well immediately after installation and well development. Results shall also be submitted for any additional analyses performed by the discharger at the specific request of the Board.

(2). The quarterly reports shall identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and shall have prior approval of the Board's Executive Officer.

(3). The quarterly report shall include, but need not be limited to, groundwater elevations for all wells sampled, updated water table and piezometric surface maps for all affected water bearing zones, cross-sectional geological maps presenting soil boring log results and an interpretion of the hydrogeological setting of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.

(4). Ford Aerospace shall describe, in the quarterly SMR, the reasons for significant increases in a pollutant concentration at a well onsite. The description shall include:

1). the source of the increase,

2). how Ford Aerospace determined or will investigate the source of the increase, and

3). what source removal measures have been completed or will be proposed.

(5). Original lab results shall be retained and shall be made available for inspection for three years after origination or until after all continuing or impending legal or administrative actions are resolved.

(6). The quarterly reports shall include a discussion of unexpected operational changes which could affect performance of the extraction system, such as flow fluctuations, maintenance shutdown, etc.

(7). Ford Aerospace shall describe in the quarterly monitoring report the effectiveness of the actions taken to regain compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness.

(8). The annual report shall be combined with the fourth quarter regular report and shall include cumulative data for each on-site well. The annual report for December shall also include minimum, maximum, median and average water quality data for the year.

d. SMP Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a quarterly SMR. The changes shall be implemented only upon written approval from Board staff.

Criteria for SMP revision:

(1). Discontinued analysis for a routine chemical parameter for a specific well after a one-year period of below detection limit values for that parameter.

(2). Changes in sampling frequency for a specific well after a one-year period of below detection limit values for all chemical parameters from that well.

(3). Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g., evaluating groundwater extraction effectiveness or other remediation strategies).

D. DESCRIPTION OF SAMPLING STATIONS

Groundwater

Stations	Description
Listed in Table 1	Monitoring wells and Building 5 sump.

E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be given in Table 1.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data established in Regional Board Order No. 89-137.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

Steven R. Ritchie
Executive Officer

Effective Date: August 16, 1989

Attachments: Table 1

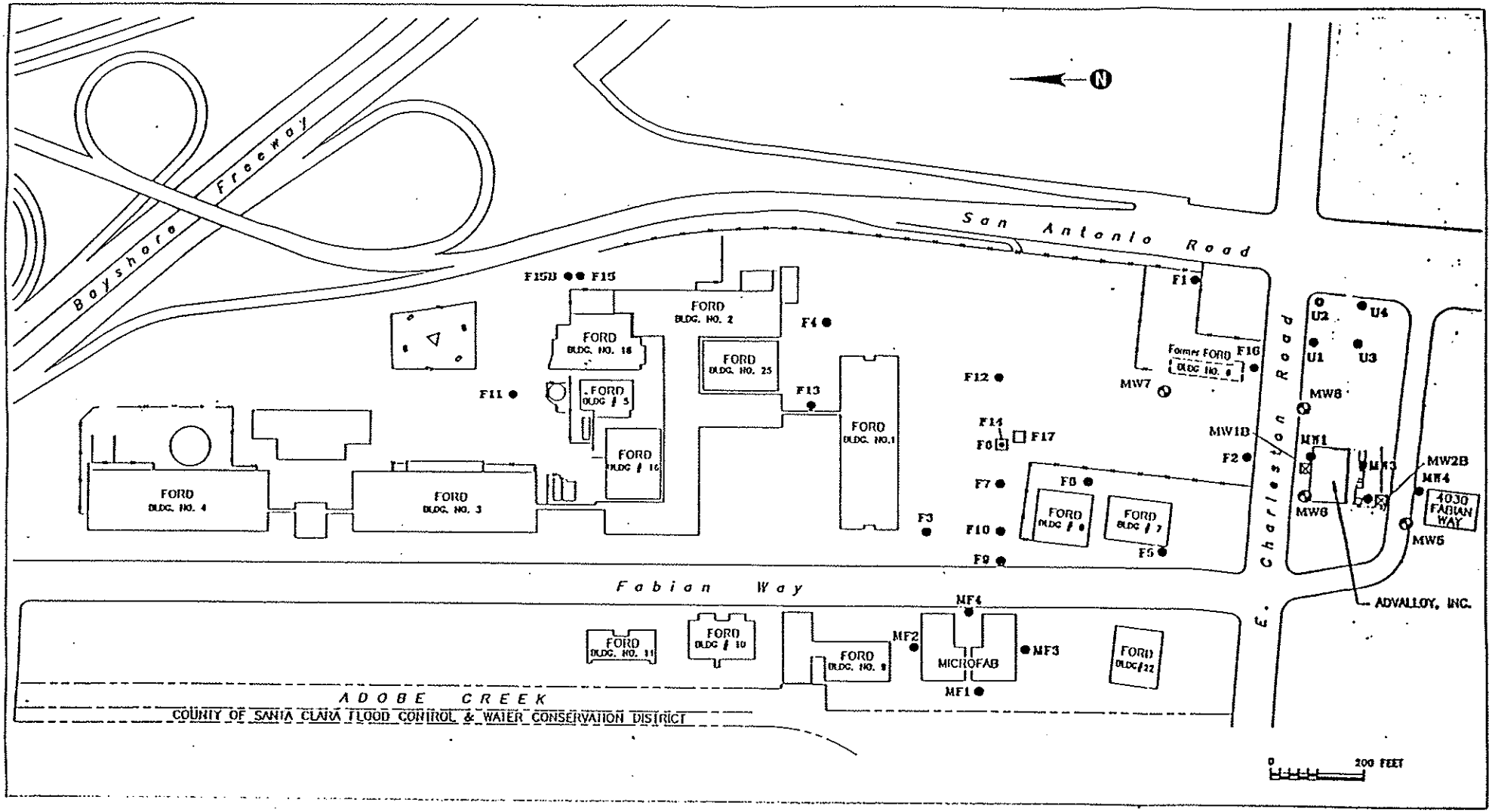
TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATION >>	monitoring wells 1 through N
TYPE OF SAMPLE	G
Flow Rate (gal/day)	
pH (units)	
Temperature (deg. C)	
EPA 8010 for: purgeable priority pollutants	Q
GC/MS Scan(EPA 8240)	1/Y*

LEGEND FOR TABLE 1

G = grab sample
Q = quarterly, January-March, April-June, July-September, October-December
1/Y = once per year
N = most recently constructed monitoring well

* EPA 8010 not required for quarter when EPA 8240 is performed. EPA 8240 shall be performed with open scan.


Bayshore
Freeway
San Antonio Road
N
F15B
F15
FORD BLDG. NO. 2
FORD BLDG. NO. 18
FORD BLDG. NO. 25
F4
F11
FORD BLDG. # 5
FORD BLDG. # 16
F13
FORD BLDG. NO. 1
FORD BLDG. NO. 4
FORD BLDG. NO. 3
F3
F1
Former FORD BLDG. No. 6
F16
MW7
F12
F14
F6
F17
F8
F7
F10
F9
FORD BLDG. # 8
FORD BLDG. # 7
F5
U2
U4
U1
U3
MW8
MW1B
MW1
MW3
MW2B
MW4
4030 FABIAN WAY
MW6
MW5
F2
Charleston Road
E.
ADVALLOY, INC.
Fabian Way
MF4
FORD BLDG. NO. 11
FORD BLDG. # 10
FORD BLDG. NO. 9
MF2
MICROFAB
MF3
FORD BLDG. #22
MF1
ADOBE CREEK
COUNTY OF SANTA CLARA FLOOD CONTROL & WATER CONSERVATION DISTRICT
0
200 FEET

SITE MAP